Sensors and Materials, Vol. 19, No. 5 (2007) 299–307
MYU Tokyo

S & M 0684

Odor Quantification of Aromatic Alcohols Using Artificial Olfactory Epithelium

Ryosuke Izumi*, Hiroshi Abe, Kenshi Hayashi and Kiyoshi Toko

Kyushu University, 744 Motooka, Nishi-ku, Fukuoka 819-0395, Japan

(Received March 27, 2007; accepted May 12, 2007)

Key words: odor quantification, artificial olfactory epithelium, aromatic alcohol, substructure, self-assembled monolayer

The quantification of the senses requires the interpretation of a biological recognition process. In olfactory senses, the receptors on the olfactory epithelium receive odor molecules by recognizing not their whole rigid chemical structures but their common properties. In this study, we attempted to develop an artificial olfactory epithelium system that can recognize the molecular information of odor. This system was constructed using an electrochemical cell and has been developed by the functionalization of sensor channels with the composition of electrolyte solution and with surface modification technologies. As a result, the odor information of aromatic alcohols could be represented, depending on molecular substructures.

*Corresponding author: e-mail: izumi@belab.ed.kyushu-u.ac.jp